

EXAMPLE 11

A surgical adhesive, obtained by mixing and dehydrating 70 parts of Prepolymer B2 with 30 parts of MCA.

EXAMPLE 12

A surgical adhesive, obtained by mixing and dehydrating 50 parts of Prepolymer B3 with 50 parts of BCA.

EXAMPLE 13

A surgical adhesive, obtained by mixing and dehydrating 40 parts of Prepolymer B4 with 60 parts of ECA.

COMPARATIVE EXAMPLE 5

A surgical adhesive, obtained by mixing and dehydrating 50 parts of Prepolymer III with 50 parts of ECA.

[Testing of Surgical Adhesives]

Carotid artery of goat, heparinized in order to avoid effects of blood coagulation, was clamped at about 5 cm of distance and then incised 3 mm along with the longitudinal direction, followed by coating a small amount of each adhesive. Within several minutes after application of the adhesive, the clamps were removed. Then, the tissue adhesivity and hemostasis were carefully evaluated.

The results were as shown in Table 1.

TABLE 1

| Surgical Adhesive | Cure Time (sec.) | Flexibility | Bonding Power | Clinical sign at adhesive joints |
|----------------------------|------------------|-------------|---------------|--|
| <u>Example</u> | | | | |
| 1 | 25 | | | Very good adhesivity. No bleeding after declamping. |
| 2 | 24 | | | Very good adhesivity. No bleeding after declamping. |
| 3 | 20 | | | Very good adhesivity. No bleeding after declamping. |
| 4 | 35 | | | Very good adhesivity. No bleeding after declamping. |
| 5 | 7 | | | Very good adhesivity. No bleeding after declamping. |
| 6 | 35 | | | Very good adhesivity. No bleeding after declamping. |
| 7 | 36 | | | Very good adhesivity. No bleeding after declamping. |
| 8 | 29 | | | Very good adhesivity. No bleeding after declamping. |
| 9 | 42 | | | Very good adhesivity. No bleeding after declamping. |
| 10 | 10 | | | Very good adhesivity. No bleeding after declamping. |
| 11 | 15 | | | Very good adhesivity. No bleeding after declamping. |
| 12 | 9 | | | Very good adhesivity. No bleeding after declamping. |
| 13 | 10 | | | Very good adhesivity. No bleeding after declamping. |
| <u>Comparative Example</u> | | | | |
| 1 | 5 | × | × | Very fast curing. Delamination immediately after declamping. Massive bleeding. |
| 2 | ≥400 | | × | Slow and inhomogeneous curing characteristics. Bleeding from adhesive joints |
| 3 | 400 | | × | Very slow curing. Due to premature curing, bleeding after declamping. |
| 4 | 350 | | Δ | Very slow curing. Premature curing. Bleeding. |
| 5 | 400 | | × | Very slow curing. Inhomogeneous curing. Bleeding from adhesive joints |

COMPARATIVE EXAMPLE 1

A surgical adhesive consisting essentially of ECA.

COMPARATIVE EXAMPLES 2 AND 3

Surgical adhesive consisting essentially of Prepolymers I and II, respectively.

COMPARATIVE EXAMPLE 4

A surgical adhesive, obtained by dissolving 7 parts of a nitrile rubber (nitrile content: 38-40%) into 50 parts of dehydrated dry nitromethane, followed by adding thereto under stirring 7 parts of ECA and 1 part of TDI.

What is claimed as new and desired to be secured by Letters Patent is:

1. A surgical adhesive, which comprises:

(A) at least one NCO-terminated hydrophilic urethane prepolymer, derived from at least one organic polyisocyanate and a polyol component comprising at least one hydrophilic polyether polyol having an oxyethylene content of at least 30%; and
(B) at least one unsaturated cyano compound containing a cyano group attached to a carbon atom constituting the polymerizable double bond.

2. The adhesive of claim 1, wherein said prepolymer has an isocyanate-content of 1-10% by weight.

3. The adhesive of claim 1, wherein said polyol component has an oxyethylene content of at least 30%.